Delta Operations for Salmonids and Sturgeon (DOSS) Group
Conference call: 5/29/13 at 9:00 a.m.

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to reduce adverse effects from Delta operations of the Central Valley Project and the State Water Project on salmonids and green sturgeon. DOSS will work with other technical teams. DOSS notes and advice can be found at: http://www.swr.noaa.gov/ocap/doss.htm.

DWR: Mike Ford, Edmund Yu, Kevin Reece, James Gleim, Andy Chu
FWS: Craig Anderson, Roger Guinee
NMFS: Barbara Rocco, Jeff Stuart, Barb Byrne, Garwin Yip
Reclamation: Russ Yaworsky, Josh Israel
DFW: Krystal Acierto, Robert Vincik, Colin Purdy
SWRCB: Scott Ligare
EPA: Erin Foresman
USGS: not present

Agenda

1. Fish monitoring
2. Current operations
3. Update on SWRCB western Delta salinity standards
4. Identify participants for subgroup to provide feedback on T&C 2a – quantifying incidental take
5. SWG update
6. RPA implementation update
7. DOSS advice

NMFS Merger: The southwest (SW) and northwest (NW) regions of NMFS are merging. The Central Valley Office will continue to exist and any structural changes in how duties are shared throughout the new West Coast region will be determined over the next year or so. The current NW Regional Administrator, Will Stelle, will take on the responsibility of regional administrator for both the NW and SW regional offices as the agency works on forming its new West Coast Regional Office. Rod McInnis, SW Regional Administrator, has accepted a new position at NOAA Fisheries headquarters in Silver Spring, MD as Acting Director of NOAA Fisheries Office of International Affairs. For more information regarding the merger, For more information regarding the merger,
see: http://www.nmfs.noaa.gov/aboutus/leadership_message.html.

Delta Status Meeting: The meeting on "Determining Delta Status under the COA" is scheduled for 6/4 from 10:15 to 11:00 a.m. (shortly after the DOSS call). All are welcome; e-mail Byrne (NMFS) if you want to be added to the participant list.

Fish Monitoring: The following table presents fish monitoring data. Unless otherwise noted, reported sizes are fork length. See also:
http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.

Location	Chipps Is. Midwater Trawl	Sacramento Trawls	Mossdale Kodiak Trawl	Glenn-Colusa ID RST	Tisdale RST	Beach Seines

Sample Date	5/20, 23, 24	5/21, 24	Data not available during call	5/20–5/28	5/21–5/24, 27	5/20, 21, 23, 24
Total Catch	**170**	**68**		**1,241**	**24**	**136**
FR	140 (+1 adult Chinook)	67		1,157 (~128/day avg)	21	3
WR						
SR	1			7 (juvenile)		
LFR						
Ad-Clipped Chinook	25	1 (83 mm)		73	3	
DS	1 (84 mm)					2 (27 & 37 mm)
Splittail	2 (222 & 238 mm)					131
Longfin						
SH (ad-clip)						
SH (wild)				4		
W. Temp. (avg. °F)	66.74	67.6		60.3	62.2	68.5
Flows (avg. cfs)						8,934
Turbidity (avg. NTU)	46.8	18.0		2.46	9.36	17.7
WR/LFR Avg. CPUE						
FR/SR Avg. CPUE						0.12

Key: FR = Fall run; LFR = Late-fall run; SR = Spring run; WR = Winter run; SH = Steelhead; DS = Delta smelt; LFS = longfin smelt; CPUE = catch per unit of effort; ACT = acoustic tag

Glenn–Colusa: No sturgeon have been seen in the Glenn-Colusa Irrigation District rotary screw traps.

Fish Salvage: Geir Aasen (DFW) provided the fish salvage report covering 5/20/13 through 5/27/13 and emailed it to DOSS participants. This report is posted at ftp://ftp.delta.dfg.ca.gov/salvage and you can locate the table under folder "DOSS salvage tables" (also try http://www.dfg.ca.gov/delta/apps/salvage/Default.aspx and click on "salvage FTP site").

DFW (Fujimura) report for 5/20–5/27 (8 days)

The number of salvaged steelhead decreased last week. There were 32 steelhead salvaged during the reporting period, 24 of which were non-ad-clipped. The estimated daily loss densities of non-ad-clipped steelhead ranged from 1.16 to 2.73 fish/TAF when they were observed. The season total of salvaged non-ad-clipped steelhead is 765.

No non-ad-clipped older juvenile Chinook salmon were salvaged last week. The salvage numbers of non-ad-clipped juvenile Chinook in the fall-run size decreased.

There were 535 non-ad-clipped juvenile Chinook salvaged during the reporting period, 16 of which were spring-run sized and 519 of which were fall-run sized. No ad-clipped Chinook were salvaged last week.

No sturgeon were salvaged during the reporting period.

Report on preliminary salvage estimates for 5/28/13

Byrne (NMFS) reported that, per an e-mail reporting on preliminary salvage from Aasen (DFW), no older juvenile Chinook or steelhead were salvaged at either facility on 5/28; therefore, based on this preliminary information, yesterday's loss did not exceed any of the action triggers in Action IV.2.3 (OMR flow management).

Compiled by Bob Fujimura on May 28, 2013

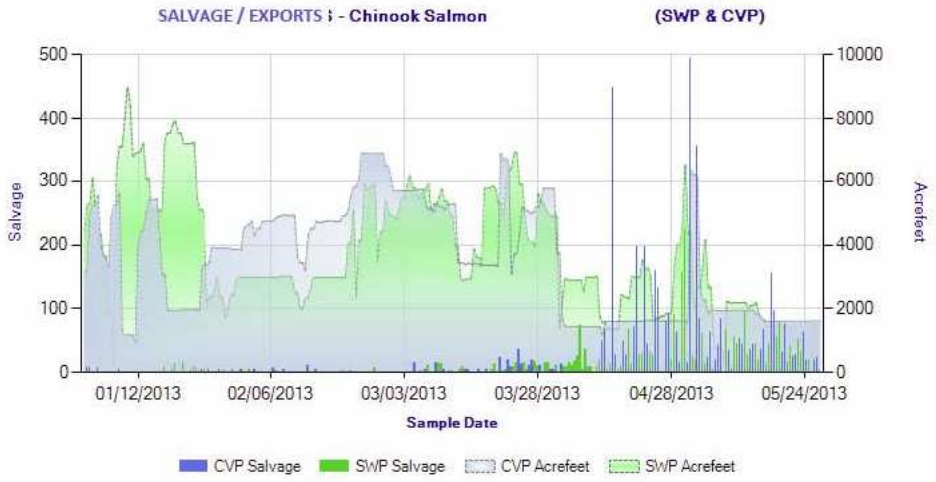


Figure 1. Daily salvage of Chinook salmon (all races) and water exports from the state and federal fish salvage facilities during January 1 through May 27, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx.

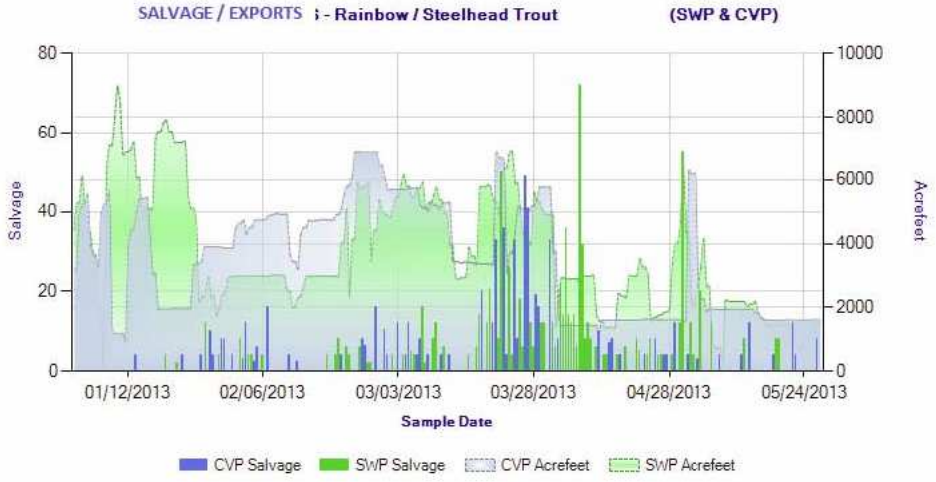


Figure 2. Daily salvage of steelhead and water exports from the state and federal fish salvage facilities during January 1 through May 27, 2013. Graph obtained from the DFG salvage monitoring web-page: http://www.dfg.ca.gov/delta/apps/salvage/SalvageExportCalendar.aspx

DOSS Weekly Salvage Update
Reporting Period: May 20-27, 2013*
Prepared by Bob Fujimura on May 28, 2013 2000
Preliminary Results -Subject to Revision

Criteria	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	Trend	
Loss Densities										
Wild older juvenile CS	0	0	0	0	0	0	0	0	→	0.0
Wild steelhead	0	0	2.73	1.16	0	0	0	1.76	↘	0.7
Exports										
SWP daily export	1,452	1,451	1,381	744	744	1,381	1,472	1,472	↘	1,232
CVP daily export	1,604	1,608	1,608	1,606	1,606	1,609	1,613	1,612	↘	1,608

Loss Density = fish lost/TAF, water export = AF; Trend = compared to previous week; wild = adipose fin present
Loss = estimated number of fish lost at the CVP and SWP Delta export facilities based on estimated salvage (see below)
Please note that reporting period represents 8 days instead of the usual 7 days

Chinook Salmon Weekly*/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities
Race determined by size at date of capture; hatchery = adipose fin missing;

		Weekly Total			Season Total	
Category		Salvage	Loss	Trend	Salvage	Loss
Wild						
	Winter Run	0	0	→	271	731
	Spring Run	16	84	↘	909	2,496
	Late Fall Run	0	0	→	85	277
	Fall Run	519	1,354	↘	4,473	8,506
	Unclassified	0	0	→	8	5
	Total	**535**	**1,438**		**5,746**	**12,015**
Hatchery						
	Winter Run	0	0	→	187	595
	Spring Run	0	0	→	7	15
	Late Fall Run	0	0	→	781	2,898
	Fall Run	0	0	→	415	1,522
	Unclassified	0	0	→	0	0
	Total	**0**	**0**		**1,390**	**5,030**

Trend = weekly loss per race; Salvage = estimated number of fish collected by the CVP and SWP fish protective facilities per unit of time

Steelhead Weekly*/Season Salvage and Loss
Combined salvage and loss for both CVP and SWP fish facilities

	Weekly Total			Season Total	
Category	Salvage	Loss	Trend	Salvage	Loss
Wild	24	16	↘	765	2,154
Hatchery	8	35	→	701	1,882
Total	**32**	**51**		**1,466**	**4,036**

State Water Project loss = salvage x 4.33; Central Valley Project loss = salvage x 0.68

Hatchery Coded-Wire-Tag (CWT) Results (as of 5/27/13, see table below): No CWT Chinook salmon have been seen at the export facilities since 5/4. Some CWT data from the FWS trawl and beach seine monitoring stations have not yet been processed. All CWTs at the export facilities have been processed.

CONFIRMED HATCHERY (ADIPOSE FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Release Date	CWT Race	Hatchery	Release Site	Release Type	Confirmed Loss	Number Released[1]	Total Entering Delta	% Loss of Number Released[2]	% Loss of Total Entering Delta[3]	First Concern Level	Second Concern Level	Date of First Loss[4]	Date of Last Loss[4]
11/5/2012	F	Mokelumne River Hatchery	Mokelumne River	**	599.45	100,633	n/a	0.596	n/a	n/a	n/a	12/5/2012	4/8/2013
11/29/2012	LF	Coleman NFH	Battle Creek	Production	4100.48	805,842	n/a	0.509	n/a	n/a	n/a	12/9/2012	4/21/2013
12/18/2012	LF	Coleman NFH	Battle Creek	Spring Surrogate	74.95	72,974	n/a	0.103	n/a	0.5%	1.0%	12/31/2012	3/23/2013
1/8/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	138.70	79,000	n/a	0.176	n/a	0.5%	1.0%	1/20/2013	3/27/2013
1/25/2013	LF	Coleman NFH	Battle Creek	Spring Surrogate	24.40	85,600	n/a	0.029	n/a	0.5%	1.0%	2/3/2013	3/31/2013
2/7/2013	W	Livingston Stone NFH	Caldwell Park	Production	8.59	182,662	96,525	0.005	0.009	0.5%	1.0%	3/25/2013	3/25/2013
4/9 to 4/16/2013	S	Feather River Hatchery	Boyd's Pump	**	4.33	1,034,101	n/a	0.0004	n/a	n/a	n/a	4/30/2013	5/3/2013
4/10 to 4/11/2013	F	Coleman NFH	Battle Creek	Production	2.33	1,583,900	n/a	0.0001	n/a	n/a	n/a	5/2/2013	5/4/2013
4/17 to 4/18/2013	F	Mokelumne River Hatchery	Sherman Island Rd	**	0.00	112,447	n/a	0.000	n/a	n/a	n/a	5/4/2013	5/4/2013

UNCONFIRMED HATCHERY (ADIPOSE FIN CLIPPED) CHINOOK SALMON LOSS AT THE SWP & CVP DELTA FISH FACILITIES, 2012/2013

Facility	Unknown CWT Loss[5]	Unread CWT Loss[6]	Unknown Hatchery Loss[7]	Acoustic Tag Loss[8]	Number of Unassigned CWTs[9]
SWP	53.58	0.00	0.00	17.93	1
CVP	5.20	0.00	0.00	0.00	0
TOTAL	**58.78**	**0.00**	**0.00**	**17.93**	**1**

SWP and CVP adipose fin clipped Chinook lost from 10/1/2012 through 5/27/2013.
[1]Number released with the adipose fin clipped and a coded-wire tag (CWT).
[2]% Loss of Number Released = (Confirmed Loss/Number Released)*100.
[3]% Loss of Total Entering Delta= (Confirmed Loss/Total Entering Delta)*100.
[4]Date of first and last loss accounts for all CWT loss even those from special studies where salvage and loss=0.
[5]Adipose fin clipped Chinook was observed during fish count, but tag code could not be determined (e.g., damaged tag, lost tag, no tag, or Chinook accidentally released).
[6]Adipose fin clipped Chinook was collected during fish count and has not been processed yet.
[7]CWT has been read, but hatchery release information not yet available.
[8]Adipose fin clipped Chinook released due to presence of sutures.
[9]CWT cannot currently be assigned to a salvage record with certainty since the CWT was lost and then found. CWT may be assigned to a salvage record if new information is available.
** Information not yet available.

DWR-DES Revised 5/28/2013
Preliminary data from DFW, DWR, FWS, and Reclamation; subject to revision.

Operations (5/29/13)

SWP		CVP	
Exports (cfs)			
Clifton Court Forebay	700 (will reassess on 6/1)	Jones Pumping Plant	800
Reservoir Releases (cfs)			
Feather - Oroville	2,500	American - Nimbus	1,000 (increase to 1,500 on 6/1 to meet Delta objectives)
		Sacramento - Keswick	12,500 (decrease to 12,000 on 5/30)
		Stanislaus - Goodwin	250
Reservoir Storage (in TAF, % of capacity)			
San Luis (SWP)	333	San Luis (CVP)	489
Oroville	2,828	Shasta	3,400
New Melones		Folsom	727
Delta Operations			
DCC	Closed (will reopen this weekend)	Sacramento River at Freeport (cfs)	11,938
Outflow Index (cfs)	9,400	San Joaquin River (cfs) at Vernalis	975
Total Delta Inflow (cfs)	14,054	OMR (daily) (cfs)	
Water Temperature (°F)		OMR 5-day avg (cfs)	-1,996
X2 (km)	>81 (upstream of Collinsville)	OMR 14-day avg (cfs)	-1,390

E/I (%)	10.4 (3-d avg)		

Water Quality: The agricultural barrier at Middle River is in; the agricultural barrier at Old River should be in this week. South Delta water quality is decreasing with decreasing pumping.

Update on D1641 Implementation: During last week's DOSS call, there was a question on whether a request would go to the SWRCB to relax the Emmaton water quality standard. Yip (NMFS) reported that there have been several discussions among the five agencies and that Reclamation and DWR sent a letter to SWRCB requesting an acknowledgement of the water-year type for the purposes of operating to (a) the electrical conductivity (EC, a measure of salinity) standards at four specified stations[1] in the western and interior Delta, and (b) monthly outflow requirements. The projects' letter included some estimates of water volume savings from the proposed operations, but both SWRCB and the fish agencies have asked to see the modeling results comparing operations with and without the proposed modification.

The fish agencies (NMFS, USFWS, and DFW) supported a change of the Sacramento Valley Water Year Hydrologic Classification Index (40-30-30) water-year type from "dry" to "critical" as it pertains to implementation of the EC standards at the four specified stations.

The preliminary response from the SWRCB, in an 5/24 e-mail from Howard (SWRCB), noted that

> *The State Water Board staff will not recommend any action if the projects operate to meet the critically dry year objectives for Western and Central Delta agricultural objectives, instead of operating to meet dry year objectives through August 15, 2013.*

The official response letter from SWRCB is expected to be issued today and will be posted on the SWRCB website along with related correspondence from the project and fish agencies; Ligare (SWRCB) will send the link to DOSS.

The group had a short discussion about whether the preliminary SWRCB response was the reason for some decreases in reservoir releases over the weekend. DWR and Reclamation reported that several factors (falling tide, decreasing depletions) allowed for decreased reservoir releases even without consideration of meeting critical vs. dry-year EC standards, and further discussion of the operational changes resulting from the SWRCB response were deferred to the WOMT call.

It was also noted that more information would be available at today's WOMT call and that those directly involved in the discussion could provide additional information during that call.

Update related to BiOp T&C 2a: Term & Condition 2a of NMFS' 2009 Biological Opinion (p. 786 of the 2009 BiOp) requires Reclamation to "…seek to develop an alternative technique to quantify incidental take of listed anadromous salmonid species at the Federal and State export facilities". Per the process and timeline to which NMFS and Reclamation agreed, Reclamation and DWR, in coordination with feedback from the Implementation Management Team (IMT), will work together to develop a recommendation for quantifying incidental take that will be

[1] Sacramento River at Emmaton, Station D-22; San Joaquin River at Jersey Point, Station D-15; South Fork Mokelumne River at Terminus, Station C-13; and San Joaquin River at San Andreas Landing, Station C-4.

provided to the Independent Review Panel (IRP) in 2013 as part of the annual review of NMFS and USFWS' long-term operations opinions.

Israel (Reclamation) mentioned that Reclamation has not yet made a recommendation and is requesting feedback from DOSS on the work that has been done so far. Israel will poll DOSS participants for interest in and availability for one or two meetings in June to discuss the relevant reports and what they imply for an alternative loss equation. The relevant reports identified by Israel, which will be sent to all DOSS members with the meeting poll, are:

1. DFW document on the salvage website that explains the current loss calculation equation.
2. 2011 report (prepared by Dr. Andrew Jahn, Kier Associates, under contract with NMFS) that reviews fish collection facility operations and suggests an alternative loss equation.
3. 2011/2012 Annual Incidental Take Report (prepared by DWR and Reclamation); specifically the section that compares loss calculated using both the current loss calculation and the alternative equation proposed by Jahn.
4. 2013 report (prepared by Mark Teply et al., Cramer Fish Sciences, under contract with DWR/Reclamation) that assessed the sensitivity of the different parameters in the loss equations.

Reclamation will provide a written recommendation to IMT by the end of July and there will be a presentation during the annual review in November.

Smelt Working Group (SWG): SWG agreed that given their present distribution, current salvage, and Delta conditions, the risk of entrainment of delta smelt remains low; therefore, SWG recommends that no change in operations is necessary to adequately protect delta smelt from entrainment. SWG also agreed that given their present distribution, existing constraining conditions were sufficient to protect longfin smelt. The group will continue to monitor smelt salvage, larval and juvenile smelt survey data, and Delta hydrological conditions, and will reconvene 6/3, at 10 a.m.

In preparation for their next call, by which time the San Joaquin I:E ratio RPA action from the NMFS BiOp will no longer be in effect, SWG asked that particle tracking modelling runs (for OMR flows of -1,250, -3,500, and -5,000 cfs) be completed by 6/1.

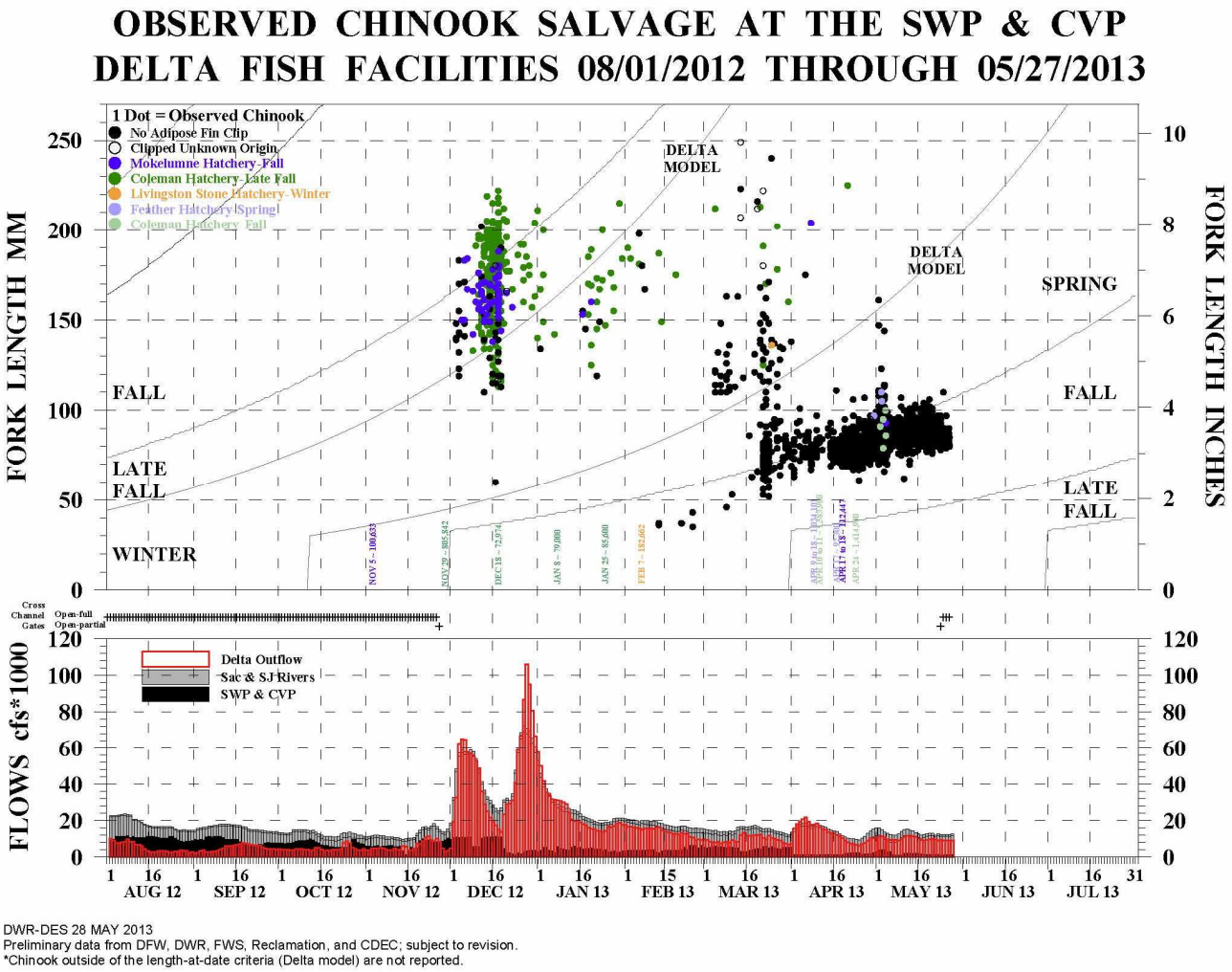
RPA Implementation Update:
Action IV.2.3 (OMR flow management): No loss triggers have been exceeded over the past week, so the OMR limit in effect is that OMR be no more negative than -5,000 cfs on a 14-day average, and no more negative than 25% more than the OMR limit (-6,125 cfs) on a 5-day average.

Action IV.2.1 (I:E ratio): Current inflow at Vernalis is 975 cfs. Because the 1:1 I:E ratio would require pumping below the minimum health & safety level of combined exports of 1,500 cfs, the health & safety exception is in effect and the projects are operating to a combined export level of 1,500 cfs).

DOSS Advice to WOMT and NMFS: None.

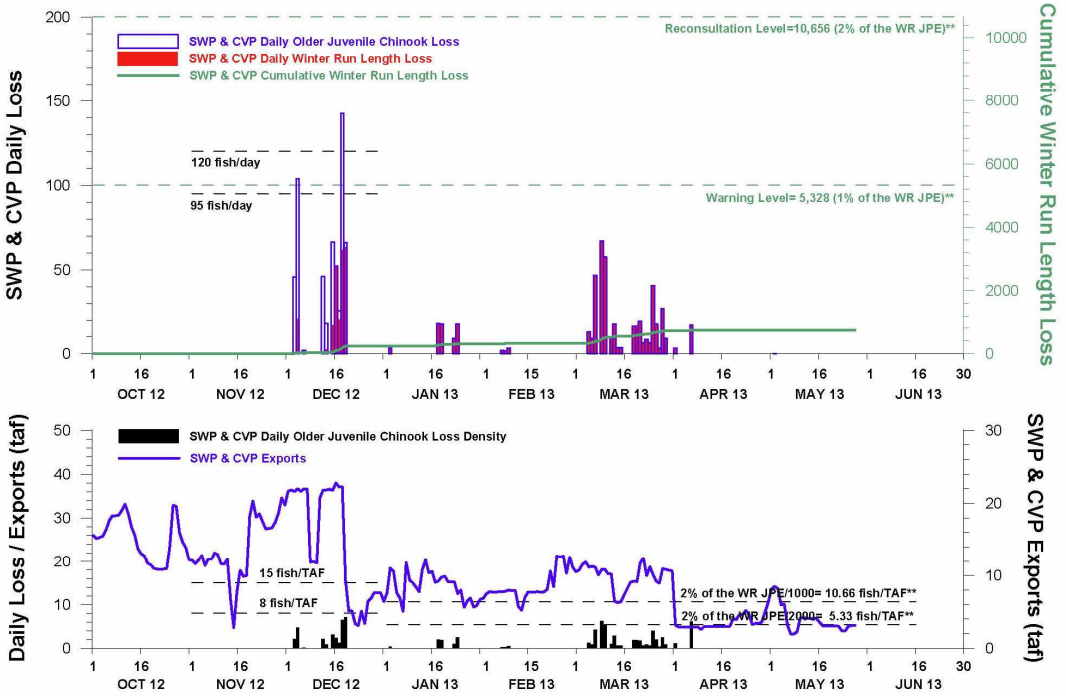
Next Meeting: The next DOSS conference call is scheduled for 6/4/13 at 9:00 a.m.

Below are graphs provided by DWR for Chinook salmon and steelhead salvaged or lost at the Delta fish facilities and observed in the Sacramento and San Joaquin rivers. For additional graphs, please visit the DWR website at: http://www.water.ca.gov/swp/operationscontrol/calfed/calfedmonitoring.cfm.



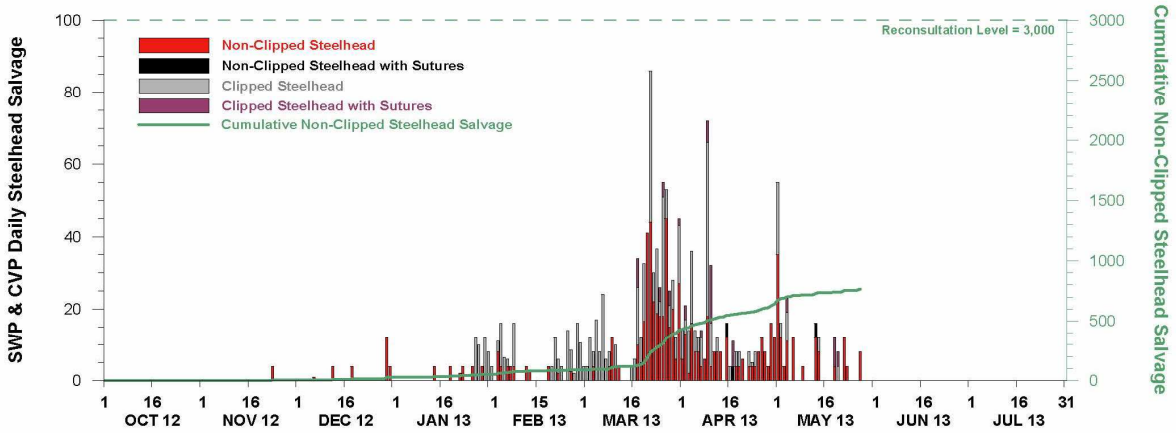
DWR-DES 28 MAY 2013
Preliminary data from DFW, DWR, FWS, Reclamation, and CDEC; subject to revision.
*Chinook outside of the length-at-date criteria (Delta model) are not reported.

NON-CLIPPED WINTER RUN & OLDER JUVENILE CHINOOK LOSS AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 27 MAY 2013



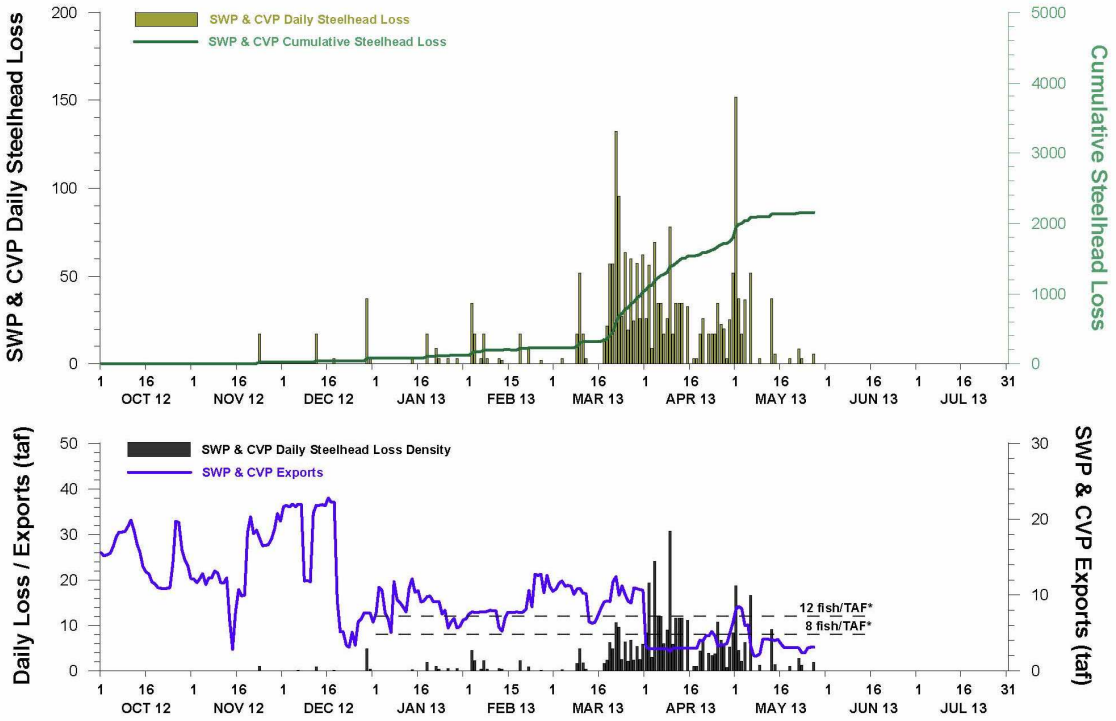
DWR-DES 28 MAY 2013
Preliminary data from DFW; subject to revision.
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Delta model) for which a race is assigned on a given sampling date.
**Based on the final juvenile production estimate (JPE), which comes out to be about 532,809 non-clipped winter run (WR) Chinook entering the Delta during water year 2013.

STEELHEAD SALVAGE AT THE DELTA
FISH FACILITIES 01 OCT 2012 THROUGH 27 MAY 2013



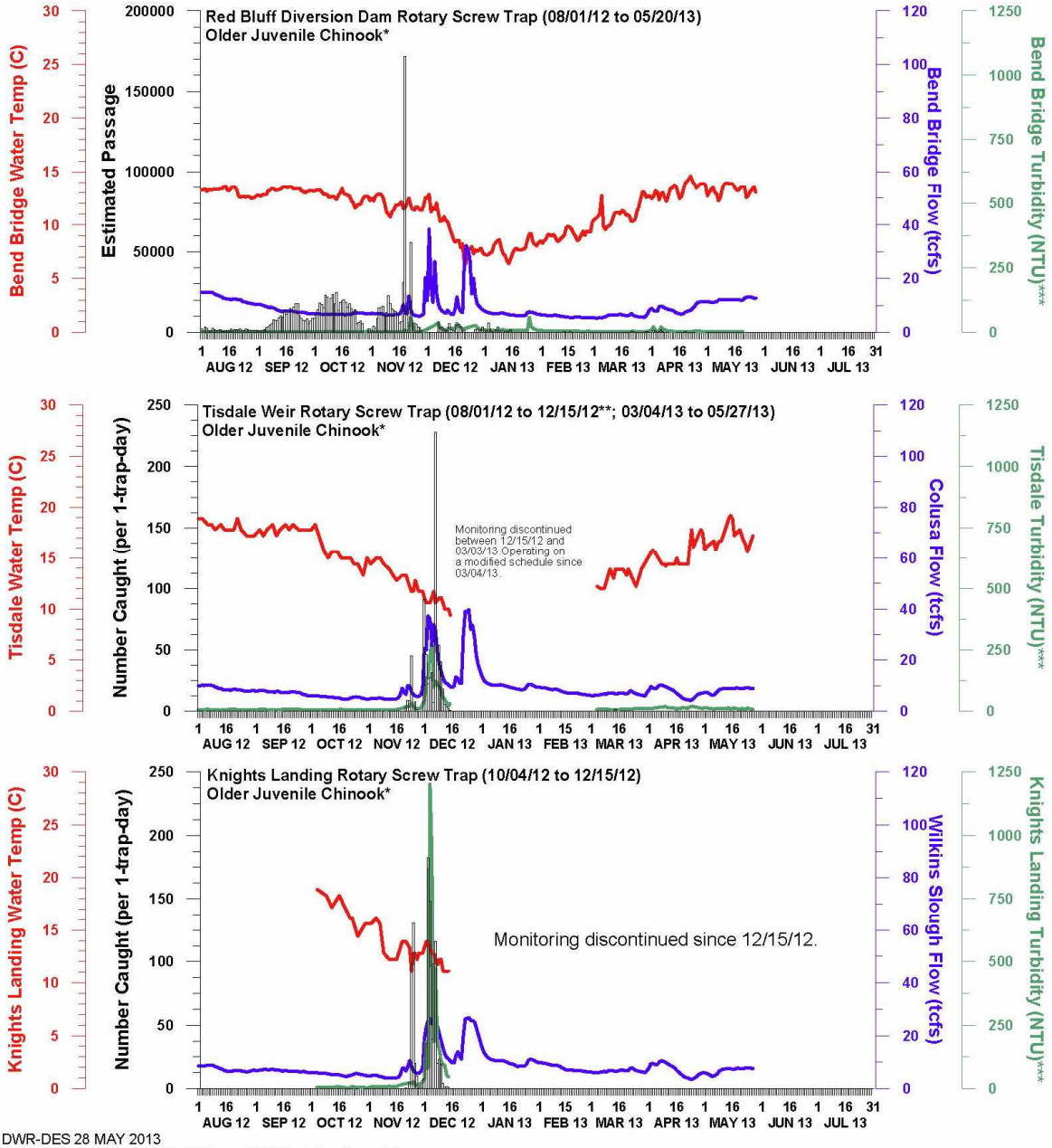
DWR-DES 28 MAY 2013
Preliminary data from DFW; subject to revision.

NON-CLIPPED STEELHEAD LOSS AT THE DELTA FISH FACILITIES 01 OCT 2012 THROUGH 27 MAY 2013



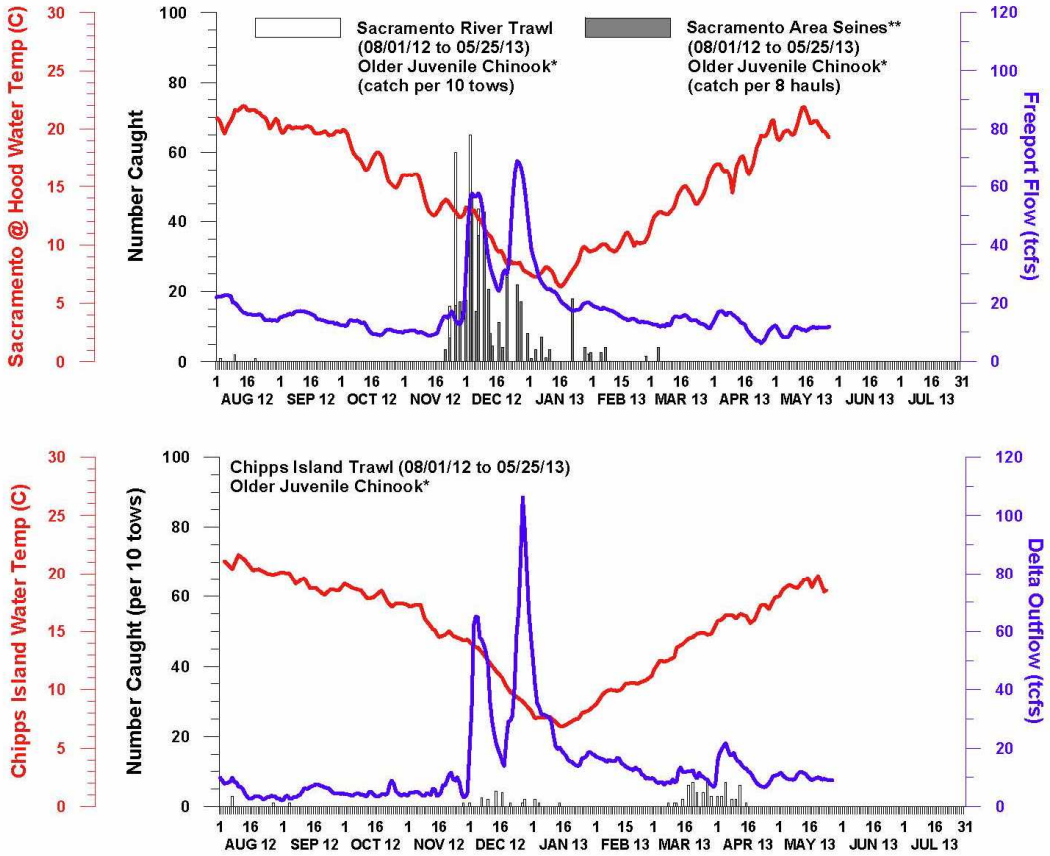
DWR-DES 28 MAY 2013 (UPDATED)
Preliminary data from DFW; subject to revision.
*Used to roughly estimate whether the daily loss is greater than 8 fish/TAF multiplied by the volume exported in TAF or 12 fish/TAF multiplied by the volume exported in TAF.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE SACRAMENTO RIVER



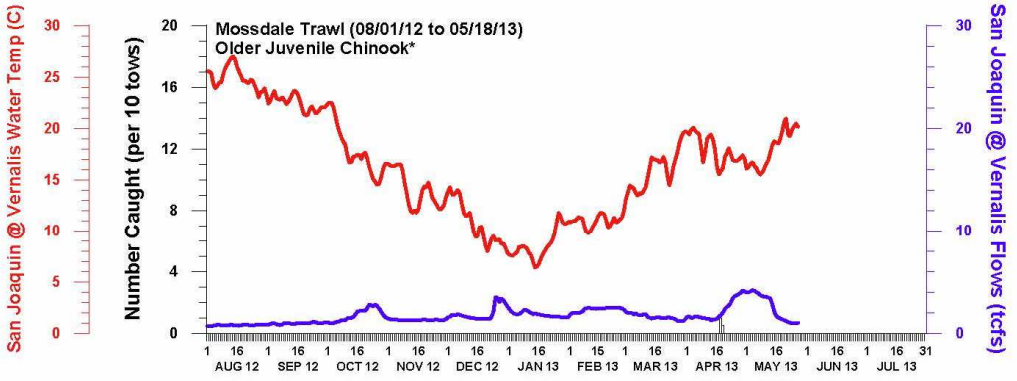
DWR-DES 28 MAY 2013
Preliminary data from DFW, FWS, and CDEC; subject to revision.
*Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.
** Tisdale Weir: One older juvenile caught on 9/14 and 43 older juveniles caught on 11/25. However, CPUE was not calculated due to problems with the cone clickers. As a result, data are not presented on the graph.
***Turbidity is a discrete measurement and is not measured continuously. Therefore, data are interpolated on days when turbidity was not measured.

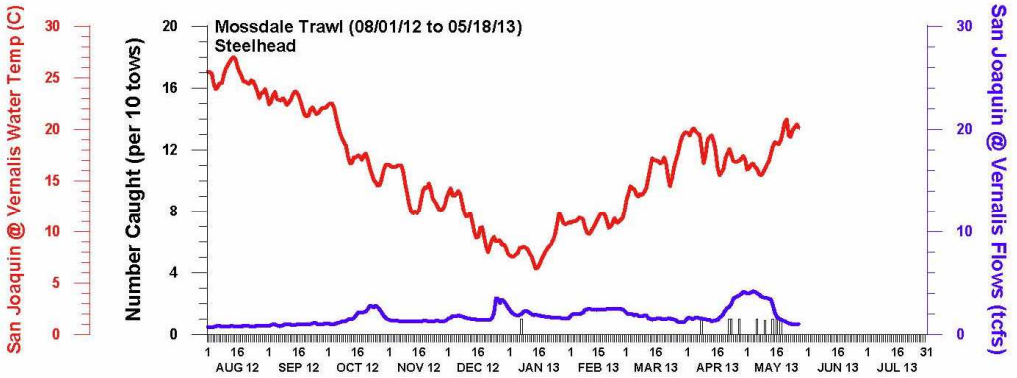
NUMBER OF UNMARKED OLDER JUVENILE CHINOOK MEASURED IN THE LOWER SACRAMENTO RIVER & CHIPPS ISLAND



DWR-DES 28 MAY 2013
Preliminary data from FWS and CDEC; subject to revision.
**Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.
**Sacramento area seine route consists of the following seine sites: Verona, Elkhorn, Sand Cove, Discovery Park, American River, Miller Park, Sherwood Harbor, and Garcia Bend. Bars are stacked if Chinook caught from the trawl and seines are from the same day.

NUMBER OF UNMARKED OLDER JUVENILE CHINOOK AND UNMARKED STEELHEAD MEASURED IN THE SAN JOAQUIN RIVER





DWR-DES 28 MAY 2013
Preliminary data from DFW, FWS, and CDEC; subject to revision.
**Older juvenile Chinook defined as all Chinook greater than or equal to the minimum winter run length-at-date criteria and less than the maximum size included in the length-at-date criteria (Frank Fisher model) for which a race is assigned on a given sampling date.